

Written Submission for Deadline 5 providing commentary on ISH 6 Coastal Geomorphology

Response from the Alde and Ore Association (Registered Charity number 1154583)

The Alde and Ore Association exists to protect for the public benefit the Alde, Ore and Butley rivers and their banks from Shingle Street to their tidal limits together with features of public interest. It has some 2000 members.

Summary

1. The Applicant's assessment of the impact on the coast is deficient, falling short by 50 -100 years in looking ahead.
The Applicant acknowledged that its assessments, at best, only go as far as 2090, some only 2070. The proposed construction would be in situ until at the earliest 2140 but may be for far longer as no solution for storing nuclear waste is in sight. This fragile and dynamic Suffolk length coast will be significantly affected during the second half of the construction's life when it becomes a protrusion into the sea: the protrusion will impact on and affect in unknown ways the natural ongoing erosion and deposition processes along the coast. Further, these in turn will be exaggerated by greater sea level rise and more violent storms caused by climate change for which the Applicant's assessment covers barely half of the minimum length of the SZC life.
2. The Applicant maintains that the Greater Sizewell Bay is self-contained and that the construction of the two plants nor their long term protrusion into the sea will have an impact on the neighbouring coastline. The history of the coastline shows that material from the north has been feeding the shingle shores to the south for centuries.
3. The Applicant's plans for the design of the plant, HCDF and SCDF are still in progress, so that a detailed assessment of impact is not possible.
4. The Applicant maintains that monitoring need only focus on the project site, taking the view that any unusual effects will be picked up by the impact in that area. The Association contends that if no baseline monitoring exists for the whole neighbouring coastline, changes occurring over the years are likely to be missed as there is no mechanism to pick up the warning signs.
5. The Applicant said that beach recharge using new material may take place as well as recycling in the zone, and so gives any confidence that adjacent areas will not long term be damaged by the impact of the growing protrusion of the construction from halfway through its projected life. However, the focus of the Monitoring Plan is on recycling and sediment bypassing, both of which could diminish the normal natural passage of sediment to the south.
6. Conclusion: The Applicant's principles for coastal assessment are deficient in time and geographical extent. The Applicant has shown no understanding that the Suffolk coast is a geomorphological entity, that its formation and evolution are involved in a continuous process so that any manmade obstacles such as the proposed project will cause damage along the coastline including possibly to Orfordness and the Alde and Ore River.
7. Request: any monitoring and mitigation plan should have a wide geographical coverage going at least as far south as Shingle Street and time intervals for monitoring can be set appropriately. There should also be some broad definition of what will be meant by mitigation and funding provided for accordingly.
8. **The Alde and Ore Association had stated at D3 that its written Submissions at D2 (REP2-202, REP2-203, and REP2-204) remained valid and un- answered and so did not repeat those at length in ISH 6, rather seeking to address detailed points as they arose.**

Detailed comments next page

ISH 6: Alde and Ore Association (AOA) commentary against ISH 6 agenda items summarised in italics.

2a Can the potential coastal impacts be assessed from the information submitted by the applicant?

D2 submissions from AOA and others question this.

2b if not, what more information is available?

As D2 submissions make clear, the fact that the Applicant does not recognise the Suffolk coast to be a single geomorphological unit, means its data focuses only on the shore bordering the proposed plant, and does not recognise that, at the very least, there is a long term sedimentary drift southward.

In ISH 6 the Applicant, nevertheless, pointed out that the Sizewell Bay was infilled by sediment coming from the north from the collapsed town shoreline and cliff land around Dunwich. The Applicant did not go onto mention or acknowledge that Orfordness was also substantially built up by sediment from the north around the time of the collapse of the Dunwich area (as AOA D2 evidence shows, and the existing Shoreline Management Plan explains).

2c the assessment principles adopted by the applicant

AOA's D2 written representations challenged these principles in detail. Pointing up a few- the underlying assumption is to be based on 'reasonably foreseeable conditions- this might be appropriate for a 10 or 20 year project, but this project is to be a physical construction until at the earliest 2140, more probably longer. Further, 'reasonably foreseeable' appears to preclude the impact of major surges on the coastline, including substantial cliff collapse in 2017 at Thorpeness. The project is a very long term construction and future modelling needs to include the extremes of future climate change. At ISH 6 the Applicant acknowledged it had not yet looked beyond 2070 or 2090, so any modelling to date is insufficient to make a balanced judgement on the impact of the project as it covers barely half of its likely physical life. Another incomplete assumption is that the offshore wave climate remains the same despite historical evidence of big changes caused by factors such as the North Atlantic Oscillation.

Further, recent academic papers, e.g., Burningham and French, all acknowledge that the science behind coastal erosion is still being developed and involves complex interactions. These interactions are further overlaid by the impact of greater sea level rise (not just isostatic rebalancing which has been ongoing for centuries) at double or more of that rate on top now arising because of climate change (a known fact not an expectation) and the more extreme weather conditions arising from climate change which are likely to have more extreme or unpredictable outcomes. It can only be concluded that the assessment principles are inadequate.

3. Implications for the Shoreline Management Plan

As the project is to be built close to the shoreline, reconfiguring the current sand dune area in front of the North Mound and against the knowledge that the shoreline is retreating, the proposal might amount to an Advance the Line plan rather than a Hold the line. As such that can run counter to current premises upon which the SMP is written. An Advance the Line proposal would require the full policy consideration given to any SMP policy change (in Suffolk this involves technical examination and public consultation and ratification by the Suffolk Coast Forum).

Noted that the position of the HDCF has not yet been settled and may be clearer after Deadline 5.

4. Potential impacts on coastal processes and geomorphology including in relation to HDCF, SCDF and BLFs and associated activities

As discussion in ISH 6 showed, the **Applicant's designs and assessments are only work in progress**, including mentioning new HCDF measurements due in at Deadline 5 and new thinking in progress on the base and composition of the SCDF. This prevents a clear assessment of the likelihoods, impacts and balances of undertaking various actions. This deficiency is an added concern because of the inadequate or narrowly drawn principles.

Evidence submitted at Deadline 2 by AOA and other individuals and organisations all show that coastal processes extend beyond the Sizewell Bay.

4.g. Cumulative aspects

Recycling shingle along the SCDF, which features more strongly in the Applicant's CPMMP paper than recharging, could result in sediment starvation to the south.

The simultaneous power project constructions on the coastline may contribute to cumulative effect -these are the unknowable impact of drilling through the Thorpeness Cliffs (essentially a hardened sand dune) a kilometre and a half to the south of Sizewell by ScottishPowerRenewables (SPR) and both the SPR and SZC projects requiring drilling around the coralline crag, a brittle rock on the seabed, at either end of Sizewell Bay.

5. Adequacy of proposed climate change adaptation measures and resilience taking account of climate change over the anticipated life of the site

As the Applicant's assessments do not yet go beyond 2090, barely half the proposed length of existence of the project, a proper assessment has simply not been made.

The HDCF design is still in progress so its adequacy or impact along the shoreline cannot be judged.

Additional query- Has the Applicant's modelling included sufficient calculations in relation to severe storms and surges?

6. Mitigation and controls, including the Coastal Processes Monitoring and Mitigation Plan (AS237)

The Alde and Ore Association considered that the CPMMP is not complete:

- Among the features to be measured there is no reference to recycling/recharging.
- The geographical scope is not wide enough (the Applicant's reference to the Aldeburgh and Leiston SSSI (AS 237 page37) as being too distant shows the very narrow view being taken on what might be affected, despite all that is known about coastal geomorphology). The CPMMP should extend on the south as far as Shingle Street to ensure that Orfordness, a protected natural feature, and the Alde and Ore Estuary behind it are monitored to enable any potential damage to be mitigated.
- The offshore banks feature strongly in the Applicant's papers as likely to change little and are crucial in the assessments providing comfort that they will protect the SZC site, but the banks themselves are a complex area, as IPs' comments have shown, and need monitoring.
- There should be a baseline from the start of the project to monitor the shoreline for anything that might be affected including the coast to the south
- A definition of what is meant by mitigation is needed- AS 237 page 30 suggests that it is maintenance to retain a shingle frontage to the SCDC and that seems to be the meaning elsewhere if not actually stated i.e., all mitigation is focussed to protect SZC. There appears to be

no provision for adjacent coastal areas, whether deprived, or suffering from a build-up, of sediment/shingle, despite the harm likely to be caused to adjacent areas.

- **Added comment for this submission.** The Applicant responded that predicted impacts are the basis for monitoring. However, given the comments by many parties that the Applicant has not taken all factors into account, such as the actual coastal geomorphology of the Suffolk area, the starting position based on predicted impacts itself, i.e., only that which has been selected to be known, could well be deficient and not identify harm to the neighbouring coastline.
- AS 237 provides for considering mitigation options later for the years 2053-2087 to deal with HCDF exposure as it is too soon to be clear as to what will happen and what mitigation will be needed. But the CPMMP is silent on what happens after 2087 when the HCDF will be increasingly protruding into the sea. Further, that very policy decision to delay indicates only too clearly that a great deal remains unknown about how the coastal geomorphology will react to the interferences caused by all elements of the construction.
- AS 237 provides for a report within 10 years of the end of decommissioning. This presumably means when the plants are no longer producing power. What is to happen for the rest of the physical life of the construction? - will there be any assessment of impact on surrounding coastlines of the long term, possibly permanent, installation on a receding coast and what if mitigation action was needed? This might include shingle recharging in areas which have been shingle deprived when the natural long term southern sediment flow is stopped either by recycling, sediment bypassing or the long term and growing protrusion of the construction into the sea.

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